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The Impact of Alternate Specifications of Business Performance: "Goal-Centered" versus "Goal-Independent" Perspectives

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The Impact of Alternate Specifications of Business Performance: "Goal-Centered" versus "Goal-Independent" Perspectives

Summary

This paper evaluates the impact of two alternate specifications of business performance in strategy research, namely "goal-centered" versus "goal-independent" perspectives. The former explicitly recognizes the role of organizational goals in the measurement of performance, while the latter is based on an external, universal scheme. The impact of choosing one over the other is evaluated using both statistical and theoretical criteria. Based on a two-phased research design involving field and simulated data, this paper finds strong support for the equivalence of the two perspectives. Implications and directions for future research are developed.

INTRODUCTION

Organizational performance or its broader manifestation, organizational effectiveness, is a topic of interest to researchers in several disciplines (such as population ecology, macro-organization theory, micro-organization theory, finance, industrial organization economics) including strategic management. Thus, while a search for an universal model of organizational effectiveness has been unsuccessful (Kanter and Brinkerhoff, 1981; Cameron and Whetten, 1983a), researchers increasingly favor discipline-specific approaches. Cameron and Whetten note that "As a construct, organizational effectiveness is similar to an untapped terrain, where the responsibility lies with the researcher to chart it" (1983a; p. 20). Hofer echoes a similar view: "it seems clear that different fields of study will and should use different measures of organizational performance because of the differences in their research questions, as well as their ultimate purposes" (1983; pp. 44-45). Consequently, a major task for strategy researchers is to conceptualize the organizational performance construct (and develop appropriate measurement schemes) consistent with the fundamental premise of the field.

From the perspective of strategic management, any conceptualization of performance, should at a minimum, reflect the level of goal-attainment since it is the true test of any strategy. Most researchers subscribe to a view that strategies are developed (or, formed) to achieve organization-specific goals, namely objectives (Schendel and Hofer, 1979). Thus, there is atleast implict acceptance that a scheme for the measurement of performance, which reflects the effectiveness of strategies, should be anchored in relation to the organizational goal-structure. This is labeled here as a "goal-centered" perspective.

But, the empirical research stream has largely adopted universal schemes that do not directly reflect organization-specific goal functions (Downey and Ireland, 1985), that is termed here as a "goal-independent" perspective. The implicit rationale appears to be that the use of a goal-independent perspective is an adequate approximation of the goal-centered perspective, in spite of arguments for considering organizational goal structures in the operationalization of performance (see for instance, Steers, 1975; Kirchoff, 1977; Schendel and Hofer, 1979). The purpose of this paper is to empirically evaluate the specific implications of adopting the goal-independent measurement approach when the theoretical stance favors the goal-centered approach. In other words, this study formally tests the equivalence of the two measurement approaches using both statistical and theoretical criteria.

THEORETICAL PERSPECTIVES

Goal-centered Versus Goal-independent Perspectives

Researchers have long debated the relative merits of the goal-centered perspective over other perspectives including the goal-independent perspective (also termed as "evaluative" or the "natural systems" approach)[1]. The use of a goal-centered perspective has its origins in Etzioni's (1964) classical work on organizations. His view of effectiveness as the degree to which an organization realizes its goals, has been subsequently refined by Price (1972) in terms of <u>derived</u> goals (i.e., judgements by an individual or a group external to the focal organization) and <u>prescribed</u> goals (i.e., those that the focal organization defines for itself). While there are compelling reasons for conceptualizing performance in terms of a goal-based approach, the major operational problems are to be recognized. These include: (a) the

identification of what constitutes the particular organization's goals since the stated goals may not be its operative goals; (b) the inability of such a system to compare diverse organizations along a common framework (Yuchtman and Seashore, 1967); and (c) the multiplicity of goals with shifting criteria for goal-tradeoffs (Cyert and March, 1963).

Thus, an alternative of developing a common evaluative framework (i.e., goal-independent perspective) had intrinsic appeal, and many researchers (e.g., Mahoney, 1967; Mahoney and Weitzel, 1969; Pickle and Friedlander, 1967) searched for common measures that can be used for evaluating a diverse set of organizations. This approach (summarized by Campbell and others, 1974) has given rise to several measures such as: overall effectiveness, productivity, efficiency, profit and growth, but it fails to reflect the context-specific importance of some over the others.

While there are strong points favoring each, the larger question of the superiority of one over the other has not been (and may be never will be) resolved. For some research goals, it may be useful to adopt an evaluative perspective, while for others, it may be both appropriate and critical to adopt a goal-centered approach. But, it appears that for most strategy research questions -- that seek to evaluate the effectiveness of strategies, a goal-centered perspective may be more relevant. The debate over the appropriateness of one perspective over the other is discussed below, with specific reference to strategic management research.

The Debate: Its Importance for Strategic Management Research

Theoretical Arguments. Fundamental to strategic management is the notion of strategic choice (Andrews, 1980; Bourgeois, 1985; Chandler, 1962; Child, 1972; Thompson, 1967) with a recognition that organizations have different and multiple goals (although they may not be explicit) and that strategies are developed to achieve these goals. Although there may not be widespread agreement on the definitions of the various constructs, most researchers would agree that the more important constructs are: goals, strategies, and performance (or, more generically termed as ends, means, and outcomes). For instance, Chandler's classic definition of strategy as "... the determination of the basic long-range goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals" (1962; p.16) distinguishes between goals (objectives, ends) from strategies (actions, means). A similar perspective characterizes the Harvard Business School's business policy paradigm (see for instance, Andrews, 1980).

The more recent strategic management research paradigm (Schendel and Hofer, 1979; p.15) is explicit in separating between goals (formulation, structure) from strategies (formulation, evaluation, and implementation) adopted to achieve these goals, i.e., performance. Within this paradigm, performance assessment is explicitly linked to the goal-structure through the "test of consistency" (1979; p.15); and Rumelt (1979) discusses goal-consistency test as a specific criterion of strategy evaluation. Indeed, there exists a set of axiomatic interlinkages among organizational goals, strategies, and performance (see also, MacCrimmon, forthcoming).

Thus, there are strong theoretical reasons to anchor the specification of performance in relation to the specific goal-structure of the focal organization. In this vein, Steers noted, "it would appear that attempts to measure effectiveness should be made with reference to the operative goals that an organization is pursuing; ...Once the actual behavioral intentions of an organization are identified, it is then possible to ascertain the degree to which those intentions are being realized. Such an approach reduces our value premises about what an organization should be doing and relies instead on what it is actually trying to do" (1975; p. 555). The underlying argument is that research efforts at operationalizing organizational performance should recognize that "[T]he equal treatment accorded the various criteria .. introduces a .. source of error in measurement. While the identification of such weights places an added burden on researchers" efforts at parsimony, such efforts should yield far more valid and representative data than most present attempts" (Steers, 1975; p. 555).

Other researchers have echoed similar views. For instance, Kirchoff (1977) noted that ".. There is no ultimate criterion of effectiveness. Complex organizations pursue multiple goals. Real effectiveness can only be measured relative to a particular set of derived or prescribed goals (1977; p. 352). He went on to conclude that "In summary, empirical research on policy must incorporate more complex measures of organizational effectiveness... models of effectiveness expressing various derived goals of the organization represent the future of policy research" (1977; p. 354; emphasis added); Wood and LaForge at the end of their study on the performance impact of strategic planning practices noted that ".. it probably is time for researchers in this area to abandon the smorgasbord use of financial measures as dependent variables and try to

match up the appropriate performance criteria with the <u>primary objectives</u> of the organization being studied" (1979; p. 526); and King's (1983) approach to the evaluation of organizational strategic planning systems and strategic choices calls for the recognition of the unique goals of the firm.

<u>Empirical Reality</u>. In spite of strong theoretical arguments, the empirical studies have adopted a goal-independent perspective. The term, "empirical" is used to denote those that follow the "variance paradigm" (Mohr, 1982) -- where the variance in the dependent variable, say performance, is explained (and/or predicted) by a set of theoretically chosen independent (say, strategy) variables. In this tradition, the typical approach has been to employ a "generic battery of performance indicators', often chosen by the researcher under an implicit assumption that they apply to "nearly all organizations" in the research sample. Hofer's observations are particularly telling: "the vast majority of the research studies done over the past two decades have relied almost exclusively on performance measures that have been "handed down" from industry practice....almost all of them were developed for different purposes than for doing academic research on the relative performance of organizations and the relative effectiveness and efficiency of different organizational strategies, structures, and processes" (1983; p. 45-46).

A stronger criticism of our failure to link performance measurement to the goal structure is made by Downey and Ireland (1985). Based on an analysis of 62 strategy studies published over a five year period (1980-1985), they concluded that "in twenty-nine studies, no attempt was made to explain why they measured organizational outcomes as they did; in twenty-three studies, organizational outcomes were measured as they were because someone else had done so previously; ....and in only one study was

an attempt made to weight the researcher's chosen outcome measures by the strategic decision makers" purposes.." (1985; p. 9).

Based on this review, they admonished strategy researchers for measuring "outcomes" without tailoring them to the organizational intentions or goals. They specifically called upon strategy researchers to "recognize that the measurement of outcomes in policy research must start with the policy makers" purposes..." and cautioned that "to use the same set of outcome measures, no matter what they are, to assess the strategic outcomes of firms is misleading" (1985; p. 14, emphasis added).

Research Question

Two general questions emerge at this juncture: One is: what explains the glaring divergence between the theoretical position and empirical reality?, and the other is: why is this important?

The first question can be answered only indirectly, since previous research studies provide little information to justify their choice (Downey and Ireland, 1985). One plausible answer is that researchers have chosen the relatively easier approach of a goal-independent perspective with an implicit reasoning that the research results are unaffected by the choice of measurement scheme. But, a more disturbing observation from Downey and Ireland's analysis is the general lack of attention provided to the discussion and justification of the dependent variable, namely performance, which is supposedly explained (and/or predicted) by the researchers" theoretically-chosen set of independent variables and corresponding operational measures. A practical explanation lies in the fact that a greater proportion of strategy research in recent years is based on databases such as the PIMS (Ramanujam and Venkatraman, 1984), or COMPUSTAT -- where relevant data on the goal-structure is not available.

The second question is a more pertinent one, namely: What is the impact of measuring organizational performance independent of the organizational goal function when the theoretical treatment is clearly anchored in terms of organization-specific goals? Addressing this question is in the spirit of construct validation that is central to theory-building and theory-testing (Cronbach, 1971). Specifically, our focus is to evaluate whether the use of a goal-independent measurement scheme for the performance construct conceived along a goal-centered approach affect the empirical relationships?

This question deserves our close attention because the extreme implication of Downey and Ireland's argument is that a large proportion of research findings that have been accumulated over the last decade using the goal-independent measurement of performance could be invalidated (or, rejected) if replicated using a goal-centered measurement scheme. Given our collective interest in developing a cumulative theory-building perspective, it is important to review and critically evaluate the foundations supporting our research findings.

This research question is stated as a null hypothesis (H_0) pitted against an alternative hypothesis (H_a) as follows:

> H_0: Evaluations of organizational performance using the two approaches -- goal-centered and goal-independent -- will be equivalent.
>
> H_a: Evaluations will not be equivalent, implying that the theoretical position of a goal-centered perspective should be directly reflected in the measurement scheme.

This hypothesis is tested using two complementary approaches: (a) statistical equivalence -- reflecting the level of statistical association between the two measurements; and (b) substantive (i.e., theoretical) equivalence -- reflecting the level of consistency in the results of a set of empirical relationships using the two measures.

METHODS AND RESULTS

Overview

This study is based on a set of analysis conducted across two sequential phases. The first phase focused on an empirical evaluation of the equivalence of the two measurement approaches based on field data obtained from a sample of business units. The generalizability of the results from this phase is tested in the second phase using a Monte Carlo simulation design which accommodates the possibility of experimentally varying the key parameters of the model over a meaningful range.

Measurement of Business Performance.

A comprehensive measurement scheme of business performance[2] is broader than the choice between goal-centered versus goal-independent approaches. Accordingly, the performance construct is circumscribed based on the guidelines provided by Cameron and Whetten (1983b) as shown in Table 1. Subsequently, following Steers" (1977) guideline calling for multiple indicators of the measure, five operational indicators were chosen. This choice was guided by Cyert and March's argument that "In general, we have observed that we can represent organizational goals reasonably well by using five different goals." (1963; p.40). The indicators chosen to reflect the performance construct along with corresponding reference to the Cyert and March goal-structure is provided in Table 2.

(INSERT TABLES 1 AND 2 ABOUT HERE)

Mathematical Specifications. The two different perspectives are specified as follows:

Goal-independent Perspective: $P_{gi} = \sum x_i$ --------------(1)

Goal-centered Perspective: $P_{gc} = \sum w_i . x_i$ ------------(2)

where,

P_{gi} = Performance measure under the goal-independent perspective reflecting a simple summated scale;

P_{gc} = Performance measurement under the goal-centered perspective reflecting a weighted summated scale.

x_i = individual item scores on a five point Likert-type scale ranging from 5=highly satisfied to 1=highly dissatisfied.

w_i = the weight assigned by the responding executive to each performance item on a rank-ordered scale from 5=highest importance and 1=lowest importance.

The specification of a goal-centered perspective is consistent with Steers (1975), who noted that: ".. new attempts .. could include efforts to account for differential weights on the various evaluation criteria to reflect different valences attached to each goal." (1975; p.555). He went on to argue that "Few organizations pursue their numerous operative goals with equal vigor or resources. A business organization, for example, may place five times the weight on the pursuit of profit as it does on the pursuit of community welfare.." (1975; p.555).

But, it is unclear as to whether the weighting scheme should be based on an interval scale or a ranking scale. This is because the former reflects a "preference independent" perspective (namely, the importance attached to one goal is independent of the importance attached to another), while the latter reflects a "preference dependent" perspective (namely, the importance attached to one constrains the importance attached to the others in the goal-set; or recognizes that trade-offs are necessary given resource constraints). Following Cyert and March (1963), and Simon (1964), the rationale is that the weighting scheme should reflect a constrained, preference dependent perspective. Hence, a scale that ranks the five objectives was chosen.

Phase 1

Data. The data was collected in two stages during 1984-85 using a self-administered, structured questionnaire as a part of a larger research project that required two stages of data collection. In the two mailings, presidents/chief executive officers of 700 strategic business units (divisions) randomly chosen from the Directory of Corporate Affiliations (250 in the first phase and 450 in the second phase; no overlap) were requested to participate in the study. A total of 203 usable responses were obtained representing an effective response rate of over 30% (after considerations of declines because of company policy). No significant stage-specific sample-bias could be found as the two samples were similar along a set of strategic characteristics[3]; and the response rate is higher than the typical response obtained from such target populations (Gaedke and Tootelian, 1976). Relevant descriptive statistics and a matrix of zero-order correlations among the five variables (x_i s) are provided in Table 3.

(INSERT TABLE 3 ABOUT HERE)

Analysis for Statistical Equivalence. The simplest and the most logical approach to test for statistical equivalence between P_{gi} and P_{gc} is to calculate the level of association between them using Pearson's zero-order correlation coefficient (r) between the two measurements defined by equations (1) and (2). The value of (r) was 0.80, which is statistically different from zero at p<.01. But, this is not surprising since equations (1) and (2) are arithmetically related.

Hence, an alternate non-parametric test statistic given by the Kendall's coefficient of concordance (W) between the two measurement schemes was employed. Since this is an indication of the extent to which there is concordance between the ratings (i.e., rankings) of two different

judges (or measurement schemes), it is not influenced by the underlying arithmetic relationships between them. The value of W was 0.9615, with a corresponding chi-squared statistic of 369.20 (df:198), $p<.001$. The implications is that if one researcher had adopted P_{gi} and the other had used P_{gc} to rank a set of firms in terms of their performance, their ranking scheme would be statistically identical. This provides strong support for the statistical equivalence of the two measurement schemes.

Substantive (Theoretical) Equivalence. Testing for statistical equivalence of measurements is a necessary first step, but is not a sufficient test for establishing equivalence. This is because it provides support for convergent validity of measurements but not for the more important criterion, namely theoretical (or, nomological validity). More specifically, it is unclear whether a set of empirical relationships (say, with strategy constructs) obtained using one measurement scheme would be consistent with a corresponding set of results obtained using the other. This requires an assessment that focuses on the theoretical equivalence, or "nomological validation" of measurements (Campbell, 1960; Cronbach and Meehl, 1955).

To assess their nomological validity, the measures P_{gi} and P_{gc} were each correlated with measures of six traits of a construct termed as "strategic orientation" -- which reflect key characteristics of business-level strategic posture. The construct definitions of the six traits are provided in Table 4, and the operational measures have been shown to satisfy important measurement criteria such as unidimensionality, reliability, convergent and discriminant validity (Venkatraman, 1985). Before we interpret the values of the correlations, it is important to recognize that the magnitude and significance of each of the correlations between strategy traits and performance is only partly meaningful without

the broader environmental context. Thus, the focus is not on the value of the correlation coefficients per se, but on the consistency of results across the two performance measurement schemes. The correlation coefficients between each measurement scheme and the six dimensions of strategic orientation are summarized in Table 4, which also includes the t-statistic that tests for the statistical significance of the difference in the magnitude of the two correlation coefficients.

(INSERT TABLE 4 ABOUT HERE)

Results. Three patterns are important from the results summarized in Table 4. First, it is evident that the directionality of the relationships is unchanged across the two measures. In four cases, the relationship between the strategy dimension and the two performance measures is consistently positive, and in the two other cases, it is consistently negative. Second, the statistical support for the correlational-type hypotheses is consistent in five of the six cases. More specifically, except for minor shifts in the level of statistical significance, the final conclusion would have been the same in all cases except the relationship between the proactiveness dimension of strategy and performance. In this case, had one hypothesized a positive and significant association, this would have been marginally accepted ($p<.10$) under the goal-independent perspective, while it would have been rejected under the goal-centered perspective. Third, the magnitude of associational effects between strategy and performance is not statistically different across the two measurement schemes in five of six cases as indicated by the insignificant t-statistic. In the remaining case, it is marginally significant ($p<.10$).

Discussion and Unresolved Issues. Thus, one can generally conclude that the empirical results supporting the underlying theoretical

relationships between strategy and performance would have been generally the same irrespective of the choice of performance measurement scheme. Consequently, we cannot reject the null hypothesis of the equivalence of the measures. It appears that the simpler, unweighted scheme of performance measurement, P_{gi} is statistically and empirically equivalent to the more complex weighted scheme, P_{gc}.

However, two issues are unresolved at this phase of research. They are: (a) the generalizability of the research results; and (b) sensitivity of the results to the specification of goal-centered performance as in equation (2). The first issue reflects the underlying question -- what can be said about the equivalence of the two perspectives beyond this study? Will this result hold for a different sample of organizations with a different pattern of goal-preference, or is it limited only to the sample of business unit studied? Although every effort was taken in the data collection plan to obtain a random sample of business units from the population, there is a finite chance that the sample may not be truly representative of the larger population. The external validity concerns are typically approached through replications, although in select cases it can be assessed using simulations, as done here.

The second issue is with the operationalization of the goal-centered perspective using a mathematical form as specified in equation (2). One can reasonably argue that the operationalization of a goal-centered perspective is by no means limited to the specification of equation (2), although it may be commonly- used. For instance, one could well specify the goal-centered perspective using a scale which reflects the magnitude of differences in the weights attached to the different goals rather than weighting by the rank-ordered scale. Both these concerns are addressed through a Monte Carlo simulatin design discussed next.

Phase 2

The rationale for this phase is derived from the need to test the stability of the results obtained in the first phase for different samples, as well as an alternate specification of the goal-centered perspective. Within a Monte Carlo design, this is achieved by systematically varying the key conditions, namely, patterns of correlations among the five indicators across several random combinations of weighting schemes. Thus, it serves as a more efficient way to assess the generalizability of the results than several replications using field-data. The use of simulation-based design is appropriate for assessing the generalizability of the results in this study because the focus is on the consistency of results rather than on the examination of theoretical relationships. The two issues underlying this phase are analyzed and discussed separately. The generalizability of the results to varying characteristics of the sample is addressed first. A brief, non-technical description of the steps involved in performing the simulation runs is provided in the Appendix.

Results. Table 5 summarizes the central results of the simulations[4]. Two values (Type A and B) are of importance in this set of analyses. Type A indicates the probability of committing an error of accepting in an incorrect hypothesis, namely the probability of accepting a correlation between strategy and P_{gi} as statistically significant at $p<.05$, when the correlation between strategy and P_{gc} is not statistically significant at the same level. It is important to note that this value was constant at 2% over the entire range of the simulation. The implication is that in 98% of cases, the results of testing the relationship between strategy and performance would be consistent across the two measures.

The value of Type B provides a complementary result. It indicates the percentage of replications within a particular setting, where the <u>magnitude</u> of the correlations between (a) P_{gi} and S and (b) P_{gc} and S is <u>not</u> statistically different. The value of Type B ranges from 86 to 92 in the six runs reported in Table 5, and ranged from 82 to 96 with a mean value of 90%, over the entire range of simultation runs as described in the Appendix (Step 10).

(INSERT TABLE 5 ABOUT HERE)

Now, we proceed to test the sensitivity of the results to the specification of equation (2). For this purpose, the equation (2) was modified with an additional condition, namely that $\sum w_i = 100$. Thus, the weighting scheme requires the allocation of 100 points to a set of five goals (in units of 10 to limit the number of possible combinations of allocations). Six different allocation schemes were considered for this set of analyses. The design of the simulation experiments follows the same steps as outlined in the appendix. Table 6 provides a summary of this set of simulation runs for the six values of the entries in the correlation matrix as before. It appears that on average, the equivalence criterion is satisfied in 90% of cases, and cosistent with the results in Table 5.

(INSERT TABLE 6 ABOUT HERE)

<u>Discussion</u> The values of Types A and B taken together indicate that the impact of not adopting a goal-centered perspective is not as serious as one would have been led to believe. Thus, the results from this phase provide additional support for the generalizability of the results obtained in the first phase. Again, the null hypothesis of equivalence in the measurement schemes cannot be rejected. Further, the results are insensitive to the specification of equation (2), as a set of analysis using a magnitude scale provided consistent results.

IMPLICATIONS AND EXTENSIONS

The recent decade of strategic management research has been marked by increasing attention to the measurement of performance (see for instance, Chakravarthy, 1986; Dess and Robinson, 1984; Hofer, 1983; Lenz, 1981; Lubatkin and Shrieves, 1986; Venkatraman and Ramanujam, 1986; 1987; Woo and Willard, 1983). However, Downey and Ireland (1985) attacked the fundamental conceptual foundation of performance measurement from a strategic management perspective by calling attention to the fact that performance measurement is not anchored in relation to the organizational goal-structure. This paper specifically sought to assess the seriousness of their admonishment.

Based on the results of this study, we provide strong support that a goal-independent perspective operationalized as a simple, unweighted scheme is both statistically and empirically equivalent to the more complex goal-cenetered perspective that requires different types of weighted schemes. In the first phase using data from a sample of business units, we found that except for minor shifts in the level of significance, the two schemes were equivalent. This result was tested for generalizability in the second phase using Monte Carlo simulations. These results provide further corroboration of equivalence. It was found that on an average, the results of a test between strategy and performance would be the same across the two schemes in atleast 90% of cases, which is considered acceptable given the random model.

The specific implication is that if the researcher is reasonably confident of the adequacy of the indicators reflecting the performance construct, then additional data on the differential weights may not be necessary for most cases. Thus, our results downplay the importance of Steers' call for obtaining differential weights (1975, p.555) as well as

mitigate the seriousness of Downey and Ireland's criticism that the results of extant strategy research may be misleading since it has been largely tested using a goal-independent perspective.

However, a word of caution is necessary here. The results do not negate a fundamental axiom that the conceptual definition should guide the development of a measurement scheme. This is because the complexities and nuances of the construct definition and operationalization (such as the dimensionality of the construct and the type of data) cannot be addressed within a single study. Consequently, the one general (but important) guideline from this study is a call for greater discussion of the underlying issues of conceptualization and measurement of performance construct in strategy research. Further, it is important to reiterate that no one operationalization is intrinsically superior. For some research purposes, it may be necessary to anchor performance measurement in terms of an external (evaluative) criteria (such as the stock-market indices), while for others, a goal-centered perspective may be the choice dictated by the underlying theory to be tested. So, we strongly urge that researchers move away from implicit selection towards formal, and explicit discussion and justification of their scheme for performance measurement. This would certainly complement the recent increase in the level of attention to the measurement of strategy constructs (see Venkatraman and Grant, 1986 for a review).

Extensions

This research study can be viewed in a context broader than an assessment of measurement equivalence. Two important extensions that have important theoretical underpinnings are identified and discussed below.

<u>Manager-articulated versus Researcher-specified Goals</u>. In this research study (especially the first phase), we pre-specified a list of performance indicators and requested managers to assign a set of ranks reflecting their organizational preference. Thus, the domain of the goal-structure of the responding organization was bounded by the researcher's prior conception. The equivalence of the two perspectives were evaluated within this constraint. A radically different approach to the assessment of equivalence calls for a design that lets the managers in a subsample to indicate their top five goals as well as their relative weights. This data can be used to construct a measure of goal-centered performance. Simultaneously, one could have a "control" subsample, that collects the data based on researcher-specified indices to obtain an alternative measure of goal-centered performance. By comparing the results of relationships between strategy and performance (or, even incorporating environmental context) across these two, (i.e., experimental and control samples), important insights into the sensitivity of the results to the distinction between manager-articulated goals and researcher-specified goals acn be systematically ascertained. This would go a long-way in refining the theoretical domain of the performance construct.

<u>Link to the "Consensus" Research Stream</u>. Another line of extension pertains to the incorporation of weighting schemes of multiple managers. This study, by virtue of its exploratory nature, obtained data from one senior-level manager, acting as an "informant" for the organizational unit. Although the specific instructions called for the executive to assume the role of an organizational spokesperson (or informant), the need to obtain responses from multiple informants cannot be underemphasized. This is because these weights reflect managerial judgements and perceptions rather than some "objective" preferences.

Over the last few years, several studies have focused on the relationship between "consensus" in strategy and goal structure on the one hand, and performance on the other (e.g., Bourgeois, 1980; Dess, 1987; Hrebiniak and Snow, 1982). These studies have focused on the degree of consensus in the independent variables, such as goals or strategies, but not in the dependent variable, namely performance. Indeed, this stream is marked by its use of a goal-independent operationalization of performance. It would be useful and insightful to develop a measure of goal-centered performance using weights from multiple managers and examine its relationship with the degree of "divergence-consensus" in their goal structures. Simultaneously, the equivalence of these two measurement perspectives can be studied using the weighting schemes provided by multiple key managers.

CONCLUSIONS

An important research issue in strategic management pertains to the conceptualization and measurement of business performance that reflects the specific concerns of the field. Within this theme, a major dichotomy relates to the distinction between goal-centered and goal-independent perspectives. While the theoretical arguments favor the former, the empirical stream has followed the latter. This research study evaluated their equivalence. Results based on a two-phased study provide strong support for their equivalence implying that an unweighted, summated scale is an adequate approximation of the more complex, weighted scale. Inspite of such strong results, it is necessary that researchers explicitly circumscribe their operationalization scheme in their theoretical perspective rather than implicitly choose a conveniently available scheme.

NOTES

1. For a detailed discussion on alternative approaches to performance assessment, see Campbell and others (1977); and Ford and Schellenberg (1982).

2. The term business performance is used to explicitly highlight that the discussion is at the level of a business (unit) of the organization.

3. Strategic characteristics were measured in terms of the importance attached to key business goals. The two samples exhibited statistically significant profiles. A detailed discussion of this result, along with a profile of the sample is availabe on request.

4. Detailed results are available on request.

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Table 1: Defining the Business Performance Construct[@]

Guideline	Circumscription
1. From whose perspective is performance being judged?	The key informant who is a member of the dominant coalition of the business unit being judged.
2. On what domain of activity is the judgement focused?	Key characteristics of business performance that can be used for comparison across business units were considered.
3. What level of analysis is used?	The organizational level (as opposed to the individual level) of analysis was the focus. Within the organization, the business unit level of the hierarchy was chosen consistent with the goals of the research project.
4. What is the purpose of the assessment?	This assessment was made to compare across businesses along multiple dimensions of performance.
5. What time frame is employed?	Performance criteria reflected static, current levels. The focus was on ascertaining the degree to which different business units differ along the key criteria.
6. What type of data are sought?	Perceptual data on the different criteria of performance were sought using questionnaire.
7. What is the reference against which performance is judged?	Referent 1: A goal-independent referent, namely that a business unit is considered to be the best performer if it scored higher (on a simple performance scale) than other units in the sample. Referent 2: A goal-centered judgement, namely that a business unit is considered to be the best performer if it scored higher (on a weighted performance scale, i.e., performance score X rank of the criterion) than other units in the sample.

@Based on Cameron and Whetten (1983b).

Table 2: Indicators and Their Theoretical Anchors

Indicator	Theoretical Dimension[@]
1. Sales	Sales goal
2. Market Share	Market share goal
3. Cash flow	Production and Inventory goal
4. Return on Sales	Profit goal
5. Return on Investment	Profit Goal

(Each indicator scaled from 5 = highly satisfied to 1 = highly dissatisfied and ranked from 5 = most important to the business unit to 1 = least important to the business unit.)

[@] Based on Cyert and March's (1963) concept of organizational goals.

Table 3: Descriptive Statistics and Zero-order Correlations

No	Performance Indicator	Importance Weights Mode	Satisfication Mean	Satisfication Sd	Zero-Order Correlations@ 1	2	3	4	5
1	Sales	1	3.35	1.05	1.0				
2	Market Share	2	3.3	0.97	0.50	1.0			
3	Cash Flow	2	3.60	1.08	0.31	0.33	1.0		
4	Return on Sales	4	3.14	1.12	0.38	0.32	0.60	1.0	
5	Return on Investment	5	3.31	1.25	0.48	0.34	0.62	.76	1.0

@All correlations are significant at levels better than $p < .05$.

Table 4: Impact of Alternate Performance Measurements

Strategy Dimension (and a Working Definition)	Correlation Coefficients With (1) P_{gi}	(2) P_{gc}	t-Statistic@ for Testing Difference Between (1) and (2)
1. Aggressiveness: aggressive allocation of resources for seeking market share	(-)0.0987	(-)0.1003*	0.03
2. Analysis: overall problem-solving and decision making posture	0.1034*	0.0938*	0.21
3. Defensiveness: posture toward defending one's care strengths	0.1909***	0.0886*	1.82*
4. Futurity: degree of futurity reflected in current strategic decisions	0.0365	0.0822	0.74
5. Proactiveness: posture towards participation in emerging markets	0.1034*	0.0688	0.59
6. Riskiness: degree of risk taking behavior in organizational decision-making	(-)0.1511**	(-)0.1193**	0.52

*$p < .10$

**$p < .05$

***$p < .01$

@ Calculations are on the basis that the two correlations are dependent on the value of correlation between P_{gi} and P_{gc}. See Bruning and Kintz (1968).

Table 5: Results of Monte Carlo Simulations

1. Representation of the Input Data Matrix for Each Run

X_1 X_2 X_3 X_4 X_5	W_1 W_2 W_3 W_4 W_5	S
Values of X_i based on the value of pairwise correlations between X_i is used as input	Rank-ordered weights randomly generated.	Random values for strategy dimension

100x11

2. Salient Results[1]

Run	R_{ij}	Type A	Type B
1	0.1	2	92
2	0.2	2	89
3	0.3	2	88
4	0.4	2	86
5	0.5	2	88
6	0.6	2	91

Type A = Probability that a relationship between strategy and P_{gi} is significant at $p < .05$, while it is not significant using P_{gc}.

Type B = Probability that the <u>magnitude</u> of the two relationships i.e., between (a) S and P_{gi} and (b) S and P_{gc} are not statistically different.

1. The entire simulation exercise was more comprehensive than the six runs reported here as outlined in the Appendix. Since the results were, in general, stable only the results of major intermediate steps in the analyses are reported. In the overall analysis, the value for Type A was constant at 2%, while the results for Type B fluctuated between 82 and 96, with a mean value of 90%. (Detailed results on request)

Table 6: Monte Carlo Simulation Results Based on

Alternate Weighting Schemes

Average Entry in the Correlation Matrix [R]	(1) W=[3,1,2,2,2]	(2) W=[4,1,2,2,2]	(3) W=[5,1,2,1,1]	(4) W=[6,1,1,1,1]	(5) W=[3,3,2,1,1]	(6) W=[3,3,2,1,1]
0.1	0.890	0.888	0.884	0.910	0.886	0.908
0.2	0.898	0.892	0.892	0.910	0.900	0.896
0.3	0.898	0.912	0.904	0.888	0.906	0.892
0.4	0.900	0.890	0.916	0.912	0.880	0.910
0.5	0.912	0.890	0.862	0.876	0.872	0.910
0.6	0.878	0.920	0.908	0.910	0.878	0.880

Entires in the cell reflect the probability of observing equivalent results across goal-independent and goal-centered perspectives.

Appendix: Summary Steps of Simulation Runs

The key steps involved in the Monte Carlo simulation runs is provided below.

Step 1. A matrix of pairwise correlations among the five indicators of the performance construct was specified as follows:

$$R = \begin{bmatrix} 1.0 & & & & \\ I & 1.0 & & & \\ J & K & 1.0 & & \\ L & M & N & 1.0 & \\ O & P & Q & R & 1.0 \end{bmatrix}$$

All the values were set initially at 0.10.

Step 2. Based on this pattern of correlations, a random sample of size n_s=100 was generated using subroutines of the Numerical Algorithm Group program library as implemented on a Prime mini computer.

Step 3. For each case in the sample, a random vector of five values that reflect the rank-ordered weights as well as a random number for the strategy dimension (with mean 0 and standard deviation unity) were generated. This provides one input data matrix of size 100X11.

Step 4. The two performance measures, P_{gi} and P_{gc} were computed in line with equations (1) and (2).

Step 5. Pearson's zero-order correlations were calculated between (a) Strategy and P_{gi} and (b) Strategy and P_{gc}, with their accompanying tests for statistical significance at $p<.05$.

Step 6. If (a) was statistically significant, but (b) was not, then it was termed as Type (A).

Step 7. The difference in the magnitude of the correlations was tested using a t-statistic. If the magnitude was not statistically different, then it was termed as Type (B).

Step 8. Steps 2 through 7 were repeated 100 times to provide 100 replications for each setting of the correlation matrix specified in step 1. Thus, n_r=100.

Step 9. For each setting, the values of Type (A) and Type (B) were computed after the 100 replications. The value of Type (A) is expected to be close to zero, while the value of Type (B) is expected to be close to 100 to provide the strongest possible support for the equivalence of measurements.

Step 10. The value of entries in the matrix specified in step 1 was increased in steps of 0.1 for each entry, keeping the others constant, and steps 2 through 9 were repeated.

Date Due